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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,243	09/12/2005	Yoshikuni Sasaki	03045PCT	2418

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EXAMINER
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ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1796

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11/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/549,243

Applicant(s)

SASAKI ET AL.

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

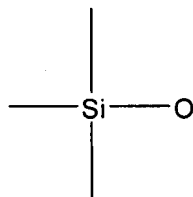
- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 08/18/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### ***Claim Analysis***

Applicant has amended the claims such that they now stipulate that (i) the polysiloxane has a network structure and (ii) formation of the organic framework is carried out using a specific approach.

As for the first point, in paragraph 32 of the associated pre-grant publication, Applicant attempts to define the concept of a network structure in the following manner:

The polysiloxane framework is defined as a compound such that a network-structured network is constituted by continuous chemical bonding of siloxane units represented by the following formula (2)



In the Examiner's estimation, this description is vague enough so as to completely fail to apprise the reader of what does, and does not, constitute a network. In the prior art, the Examiner has seen the word "network", as it pertains to polysiloxanes, used to describe crosslinked polysiloxane chains and, also, polysiloxanes comprised primarily of  $\text{RSiO}_{3/2}$  units and/or  $\text{SiO}_{4/2}$  units. The latter description appears to be consistent with Applicant's intended meaning but, insofar as they have not set out a more precisely worded definition of this term, the Examiner believes it is appropriate to maintain rejections over disclosures that teach crosslinked polysiloxane too. This is significant because at least one of the references cited in the earlier correspondence disclosed particles comprising crosslinked polysiloxane rubber.

Concerning Applicant's requirement that the organic polymer framework be prepared by first emulsifying the monomer material and having the network polysiloxane absorb the emulsified monomer prior to initiating polymerization, it should be appreciated that these new limitations are process limitations within the confines of a product claim. That is to say, the invention of claim 1 is now described employing product-by-process language.

"Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process" *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

"The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

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That the monomer is emulsified before combining it with the polysiloxane particles would, in the Examiner's estimation, not provide a different product unless, of course, the monomer were added to an aqueous medium in which it was not soluble. In this case, the Examiner submits that a composite particle would not even be realized due to the clear phase separation between the (ostensibly aqueous) silica sol and the organic monomer. Further, the skilled artisan would immediately appreciate the need to emulsify the organic monomer were the objective to form a composite particle using an aqueous silica sol and an organic monomer. That an emulsification step is not taught in the prior art of record is due to the creation of the organosilicon network product in a medium to which the organic polymer may be directly added.

As for the limitation that the polysiloxane must be made to absorb the monomer first, the Examiner submits that this occurs by mere mixing of the materials and is, thus, an inherent occurrence in the prior art methods of making these materials.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kukumoto et al., JP 9-12855.

To reiterate, the Examiner acknowledges that there is no disclosure of a pre-emulsification of the vinyl monomer but the product obtained, nevertheless, appears to be equivalent to that being claimed.

"[W]hen the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

Claims 1-4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sakai et al., U.S. patent # 5,580,619 or Sakai et al., U.S. Patent # 5,503,932.

Applicant contends that this product fails to anticipate the invention for the reason that the reference does not describe the forced absorption/uptake of the vinyl monomer

prior to free radical polymerization. It is also pointed out that Example B3, which is exemplary of the second embodiment of the composite particles teaches the simultaneous hydrolysis/condensation of the organosilicon monomer and free radical polymerization of the vinyl component.

First, column 22, lines 47-54 state that an alternative method of making the composite particles to that disclosed in Example B3 entails making an intermediate product by polycondensation of the organosilicon component followed by polymerizing the vinyl component. Additionally, the Examiner believes that the mere mixing of the intermediate product and the vinyl monomer will result in the absorption of the monomer by said intermediate product. Indeed, Applicant's Specification does not appear to mention any special measures that must be taken to coerce this absorption step. In this connection, it is noteworthy that nowhere in the Sakai documents is it stated that the vinyl polymer component forms a shell-around the inorganic polysiloxane core. Accordingly, there is an implication that the vinyl polymer and polysiloxane polymer are interdispersed among one another which could only occur if there were uptake of the vinyl monomer by the intermediate polysiloxane polymer.

Concerning claim 3, column 11, lines 35-51 state of the second embodiment of inorganic-organic composite particles that they have a mean diameter in the range of 0.5 to 50 microns and the coefficient of variability may be as low as 8%.

Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kuramoto et al., JP 2003-82045. Kuramoto discloses the preparation of composite particles using the process

outlined in paragraph [0050] wherein (co)condensation is performed using a first and optionally second silane compound selected from those portrayed in paragraphs 14-28 followed by free radical polymerization of one or more of the vinyl monomers listed in paragraph [0056] that have been blended with the silane (co)condensation product. It appears to be further contemplated in paragraph [0054] that the vinyl monomer may be emulsified with a surfactant prior to carrying out the polymerization.

Paragraph [0041] teaches the limitations of claim 3.

The rejection over U.S. Patent # 6,548,590 is withdrawn because the Examiner is less confident that the composites taught in this reference would have the same "topography" as is expected of the claimed polymers. That is to say, the composite particles of the prior art would seem to be best characterized as having an island-in-sea orientation of inorganic polysiloxane network islands in a sea of organic host polymer. The composite particles described by Applicant's claims, in contrast, do not appear to have distinct subdomains of one of either the organic- or inorganic component.

The rejection over JP 2003-98714 is hereby withdrawn. The Examiner agrees with Applicant that the polysiloxane framework would not be characterized as having a network structure. In fact, the composite particles of that disclosure would seem to be comprised of linear polysiloxane grafted with vinyl polymer chains.



Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on August 18, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 31, 2007

A handwritten signature in black ink, appearing to read "Marc S. Zimmer".

MARC S. ZIMMER  
PRIMARY EXAMINER